

WHAT IS CLAIMED IS:

1 1. A composition, comprising: isolated human dendritic cells which have
2 been exposed, *in vitro*, to an antigen associated with a tumor cell and a factor or agent that
3 promotes Major Histocompatibility Complex- (MHC-) class I processing of the antigen.

1 2. The composition of claim 1 in which subsequent to exposure, the
2 dendritic cells have been cryopreserved.

1 3. The composition according to claim 1, in which the antigen is a lysate
2 of tumor cells isolated from a patient, a membrane preparation of tumor cells isolated from a
3 patient, a purified tumor specific antigen, a purified tumor associated antigen, a purified
4 tissue associated antigen, a purified tissue specific antigen, or an antigenic fragment thereof.

1 4. The composition according to claim 3, in which the antigen is a
2 prostate tumor associated antigen.

1 5. The composition according to claim 3, in which the antigen is a lysate
2 of prostate tumor cells of a prostate cancer patient, a membrane preparation of prostate tumor
3 cells of a prostate cancer patient, purified prostate specific membrane antigen (PSMA), a
4 peptide having the amino acid sequence Leu Leu His Glu Thr Asp Ser Ala Val (SEQ ID NO.
5 1), a peptide having the amino acid sequence Ala Leu Phe Asp Ile Glu Ser Lys Val (SEQ ID
6 NO. 2), a peptide having the amino acid sequence Xaa Leu (or Met) Xaa Xaa Xaa Xaa Xaa
7 Xaa Val (or Leu) where Xaa represents any amino acid, purified prostate specific antigen
8 (PSA), purified prostate acid phosphatase (PAP), six transmembrane epithelial antigen of the
9 prostate (STEAP), prostate carcinoma tumor antigen (PCTA-1), prostate stem cell antigen
10 (PSCA), or purified prostate mucus antigen recognized by monoclonal antibody PD41.

1 6. The composition according to claim 3, in which the prostate cancer
2 antigen is:

3 Trp Leu Cys Ala Gly Ala Leu Val Leu (SEQ ID NO: 3);

4 Val Leu Ala Gly Gly Phe Phe Leu Leu (SEQ ID NO: 4);

5 Glu Leu Ala His Tyr Asp Val Leu Leu (SEQ ID NO: 5);

6 Asn Leu Asn Gly Ala Gly Asp Pro Leu (SEQ ID NO: 6);

7 Thr Leu Arg Val Asp Cys Thr Pro Leu (SEQ ID NO: 7);
 8 Val Leu Arg Met Met Asn Asp Gln Leu (SEQ ID NO: 8);
 9 Pro Met Phe Lys Tyr His Leu Thr Val (SEQ ID NO: 9);
 10 Asn Met Lys Ala Phe Leu Asp Glu Leu (SEQ ID NO: 10);
 11 Leu Met Tyr Ser Leu Val His Asn Leu (SEQ ID NO: 11);
 12 Met Met Asn Asp Gln Leu Met Phe Leu (SEQ ID NO: 12);
 13 Glu Gly Asp Leu Val Tyr Val Asn Tyr (SEQ ID NO: 13);
 14 Ala Gly Asp Pro Leu Thr Pro Gly Tyr (SEQ ID NO: 14);
 15 Arg Val Asp Cys Thr Pro Leu Met Tyr (SEQ ID NO: 15);
 16 Leu Phe Glu Pro Pro Pro Gly Tyr (SEQ ID NO: 16);
 17 Thr Tyr Glu Leu Val Glu Lys Phe Tyr (SEQ ID NO: 17);
 18 Ala Gly Glu Ser Phe Pro Gly Ile Tyr (SEQ ID NO: 18);
 19 Trp Gly Glu Val Lys Arg Gln Ile Tyr (SEQ ID NO: 19);
 20 Ile Val Arg Ser Phe Gly Thr Leu Lys Lys Glu (SEQ ID NO: 20);
 21 Asp Glu Leu Lys Ala Glu Asn Ile Lys Lys Phe (SEQ ID NO: 21);
 22 Lys Ser Leu Tyr Glu Ser Trp Thr Lys Lys Ser (SEQ ID NO: 22);
 23 Ala Tyr Ile Asn Ala Asp Ser Ser Ile (SEQ ID NO: 23);
 24 Lys Tyr Ala Asp Lys Ile Tyr Ser Ile (SEQ ID NO: 24);
 25 Gly Tyr Tyr Asp Ala Gln Lys Leu Leu (SEQ ID NO: 25);
 26 Thr Tyr Ser Val Ser Phe Asp Ser Leu (SEQ ID NO: 26);
 27 Asn Tyr Ala Arg Thr Glu Asp Phe Phe (SEQ ID NO: 27);
 28 Leu Tyr Ser Asp Pro Ala Asp Tyr Phe (SEQ ID NO: 28);
 29 Leu Pro Ser Ile Pro Val His Pro Ile (SEQ ID NO: 29);
 30 Ser Pro Ser Pro Glu Phe Ser Gly Met (SEQ ID NO: 30);
 31 Val Leu Val His Pro Gln Trp Val Leu (SEQ ID NO: 31);
 32 Lys Leu Gln Cys Val Asp Leu His Val (SEQ ID NO: 32);
 33 Ala Leu Pro Glu Arg Pro Ser Leu Tyr (SEQ ID NO: 33);
 34 Ile Val Gly Gly Trp Glu Cys Glu Lys (SEQ ID NO: 34);
 35 Gln Val His Pro Gln Lys Val Thr Lys (SEQ ID NO: 35);
 36 Val Val His Tyr Arg Lys Trp Ile Lys (SEQ ID NO: 36); or
 37 Cys Tyr Ala Ser Gly Trp Gly Ser Ile (SEQ ID NO: 37).
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7. The composition according to claim 1 in which the human dendritic cells were obtained from skin, spleen, bone marrow, thymus, lymph node, chord blood, or peripheral blood.

8. The composition according to claim 1, in which the dendritic cells are extended life span dendritic cells.

9. The composition of claim 1, wherein the factor or agent comprises bacillus Calmette Guerin (BCG) or BCG with lipopolysaccharide (LPS).

10. A method for producing a tumor cell proliferation inhibiting response, comprising: administering, to a patient in need thereof, an effective amount of human dendritic cells, exposed *in vitro* to an antigen and a factor or agent that promotes Major Histocompatibility Complex- (MHC-) class I processing of the antigen, such that after administration the human dendritic cells presenting the antigen in the context of MHC-class I elicit an immune response or augment an existing immune response which inhibits the proliferation of a tumor cell.

11. The method of claim 10, wherein the factor or agent is bacillus Calmette Guerin (BCG) or BCG with lipopolysaccharide (LPS).

12. The method according to claim 10, in which the antigen is a lysate of cancer tumor cells isolated from a patient, a membrane preparation of tumor cells isolated from a patient, a purified tumor specific antigen, a purified tumor associated antigen, a purified tissue associated antigen, a purified tissue specific antigen, or an antigenic fragment thereof.

13. The method according to claim 12, in which the antigen is a prostate tumor associated antigen.

14. The method according to claim 12, in which the prostate tumor associated antigen is a lysate of prostate tumor cells of a prostate cancer patient, a membrane

3 preparation of prostate tumor cells of a prostate cancer patient, purified prostate specific
4 membrane antigen (PSMA), a peptide having the amino acid sequence Leu Leu His Glu Thr
5 Asp Ser Ala Val (SEQ ID NO. 1), a peptide having the amino acid sequence Ala Leu Phe
6 Asp Ile Glu Ser Lys Val (SEQ ID NO. 2), a peptide having the amino acid sequence Xaa Leu
7 (or Met) Xaa Xaa Xaa Xaa Xaa Xaa Val (or Leu) where Xaa represents any amino acid,
8 purified prostate specific antigen (PSA), purified prostate acid phosphatase (PAP), six
9 transmembrane epithelial antigen of the prostate (STEAP), prostate carcinoma tumor antigen
10 (PCTA-1), prostate stem cell antigen (PSCA), or purified prostate mucus antigen recognized
11 by monoclonal antibody PD41.

1 15. The method according to claim 12, in which the prostate cancer
2 antigen is:

3 Trp Leu Cys Ala Gly Ala Leu Val Leu (SEQ ID NO: 3);
4 Val Leu Ala Gly Gly Phe Phe Leu Leu (SEQ ID NO: 4);
5 Glu Leu Ala His Tyr Asp Val Leu Leu (SEQ ID NO: 5);
6 Asn Leu Asn Gly Ala Gly Asp Pro Leu (SEQ ID NO: 6);
7 Thr Leu Arg Val Asp Cys Thr Pro Leu (SEQ ID NO: 7);
8 Val Leu Arg Met Met Asn Asp Gln Leu (SEQ ID NO: 8);
9 Pro Met Phe Lys Tyr His Leu Thr Val (SEQ ID NO: 9);
10 Asn Met Lys Ala Phe Leu Asp Glu Leu (SEQ ID NO: 10);
11 Leu Met Tyr Ser Leu Val His Asn Leu (SEQ ID NO: 11);
12 Met Met Asn Asp Gln Leu Met Phe Leu (SEQ ID NO: 12);
13 Glu Gly Asp Leu Val Tyr Val Asn Tyr (SEQ ID NO: 13);
14 Ala Gly Asp Pro Leu Thr Pro Gly Tyr (SEQ ID NO: 14);
15 Arg Val Asp Cys Thr Pro Leu Met Tyr (SEQ ID NO: 15);
16 Leu Phe Glu Pro Pro Pro Pro Gly Tyr (SEQ ID NO: 16);
17 Thr Tyr Glu Leu Val Glu Lys Phe Tyr (SEQ ID NO: 17);
18 Ala Gly Glu Ser Phe Pro Gly Ile Tyr (SEQ ID NO: 18);
19 Trp Gly Glu Val Lys Arg Gln Ile Tyr (SEQ ID NO: 19);
20 Ile Val Arg Ser Phe Gly Thr Leu Lys Lys Glu (SEQ ID NO: 20);
21 Asp Glu Leu Lys Ala Glu Asn Ile Lys Lys Phe (SEQ ID NO: 21);
22 Lys Ser Leu Tyr Glu Ser Trp Thr Lys Lys Ser (SEQ ID NO: 22);

23 Ala Tyr Ile Asn Ala Asp Ser Ser Ile (SEQ ID NO: 23);
 24 Lys Tyr Ala Asp Lys Ile Tyr Ser Ile (SEQ ID NO: 24);
 25 Gly Tyr Tyr Asp Ala Gln Lys Leu Leu (SEQ ID NO: 25);
 26 Thr Tyr Ser Val Ser Phe Asp Ser Leu (SEQ ID NO: 26);
 27 Asn Tyr Ala Arg Thr Glu Asp Phe Phe (SEQ ID NO: 27);
 28 Leu Tyr Ser Asp Pro Ala Asp Tyr Phe (SEQ ID NO: 28);
 29 Leu Pro Ser Ile Pro Val His Pro Ile (SEQ ID NO: 29);
 30 Ser Pro Ser Pro Glu Phe Ser Gly Met (SEQ ID NO: 30);
 31 Val Leu Val His Pro Gln Trp Val Leu (SEQ ID NO: 31);
 32 Lys Leu Gln Cys Val Asp Leu His Val (SEQ ID NO: 32);
 33 Ala Leu Pro Glu Arg Pro Ser Leu Tyr (SEQ ID NO: 33);
 34 Ile Val Gly Gly Trp Glu Cys Glu Lys (SEQ ID NO: 34);
 35 Gln Val His Pro Gln Lys Val Thr Lys (SEQ ID NO: 35);
 36 Val Val His Tyr Arg Lys Trp Ile Lys (SEQ ID NO: 36); or
 37 Cys Tyr Ala Ser Gly Trp Gly Ser Ile (SEQ ID NO: 37).
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1 16. The method according to claim 10, in which the human dendritic cells
 2 were obtained from skin, spleen, thymus, bone marrow, lymph nodes, chord blood, or
 3 peripheral blood of the patient.

1 17. The method according to claim 10, in which the human dendritic cells
 2 were obtained from peripheral blood.

3 18. The method according to claim 10, in which the dendritic cells were
 4 obtained from a healthy individual HLA-matched to the patient.

1 19. The method according to claim 10, in which the dendritic cells are
 2 extended life span dendritic cells.

1 20. The method according to claim 10, in which the human dendritic cells
 2 were cryopreserved and then thawed prior to administration to the patient.

21. The method according to claim 10, in which the patient is suffering from metastatic prostate cancer.

22. A method for producing a tumor growth inhibiting response, comprising: administering, to a patient in need thereof, an effective amount of activated T cells, in which the T cells were activated *in vitro* by exposure to human dendritic cells exposed to an antigen and a factor or agent that promotes Major Histocompatibility Complex (MHC) Class I processing of the antigen.

23. The method of claim 22, wherein the factor or agent is Bacille Calmette Guerin (BCG) or BCG with lipopolysaccharide (LPS).

24. The method according to claim 22, in which the tumor associated antigen is selected from the group consisting of a lysate of tumor cells of a patient, a membrane preparation of tumor cells of a patient, a purified tumor specific antigen, a purified membrane antigen, a purified tissue specific antigen, or an antigenic fragment thereof.

25. The method according to claim 22, in which the antigen is a prostate tumor associated antigen.

26. The method according to claim 22, in which the antigen is a lysate of prostate tumor cells of a prostate cancer patient, a membrane preparation of prostate tumor cells of a prostate cancer patient, purified prostate specific membrane antigen (PSMA), a peptide having the amino acid sequence Leu Leu His Glu Thr Asp Ser Ala Val (SEQ ID NO. 1), a peptide having the amino acid sequence Ala Leu Phe Asp Ile Glu Ser Lys Val (SEQ ID NO. 2), a peptide having the amino acid sequence Xaa Leu (or Met) Xaa Xaa Xaa Xaa Xaa Val (or Leu) where Xaa represents any amino acid, purified prostate specific antigen (PSA), purified prostate acid phosphatase (PAP), six transmembrane epithelial antigen of the prostate (STEAP), prostate carcinoma tumor antigen (PCTA-1), prostate stem cell antigen (PSCA), or purified prostate mucus antigen recognized by monoclonal antibody PD41.

27. The method according to claim 22, in which the antigen is:

Trp Leu Cys Ala Gly Ala Leu Val Leu (SEQ ID NO: 3);
Val Leu Ala Gly Gly Phe Phe Leu Leu (SEQ ID NO: 4);
Glu Leu Ala His Tyr Asp Val Leu Leu (SEQ ID NO: 5);
Asn Leu Asn Gly Ala Gly Asp Pro Leu (SEQ ID NO: 6);
Thr Leu Arg Val Asp Cys Thr Pro Leu (SEQ ID NO: 7);
Val Leu Arg Met Met Asn Asp Gln Leu (SEQ ID NO: 8);
Pro Met Phe Lys Tyr His Leu Thr Val (SEQ ID NO: 9);
Asn Met Lys Ala Phe Leu Asp Glu Leu (SEQ ID NO: 10);
Leu Met Tyr Ser Leu Val His Asn Leu (SEQ ID NO: 11);
Met Met Asn Asp Gln Leu Met Phe Leu (SEQ ID NO: 12);
Glu Gly Asp Leu Val Tyr Val Asn Tyr (SEQ ID NO: 13);
Ala Gly Asp Pro Leu Thr Pro Gly Tyr (SEQ ID NO: 14);
Arg Val Asp Cys Thr Pro Leu Met Tyr (SEQ ID NO: 15);
Leu Phe Glu Pro Pro Pro Gly Tyr (SEQ ID NO: 16);
Thr Tyr Glu Leu Val Glu Lys Phe Tyr (SEQ ID NO: 17);
Ala Gly Glu Ser Phe Pro Gly Ile Tyr (SEQ ID NO: 18);
Trp Gly Glu Val Lys Arg Gln Ile Tyr (SEQ ID NO: 19);
Ile Val Arg Ser Phe Gly Thr Leu Lys Lys Glu (SEQ ID NO: 20);
Asp Glu Leu Lys Ala Glu Asn Ile Lys Lys Phe (SEQ ID NO: 21);
Lys Ser Leu Tyr Glu Ser Trp Thr Lys Lys Ser (SEQ ID NO: 22);
Ala Tyr Ile Asn Ala Asp Ser Ser Ile (SEQ ID NO: 23);
Lys Tyr Ala Asp Lys Ile Tyr Ser Ile (SEQ ID NO: 24);
Gly Tyr Tyr Asp Ala Gln Lys Leu Leu (SEQ ID NO: 25);
Thr Tyr Ser Val Ser Phe Asp Ser Leu (SEQ ID NO: 26);
Asn Tyr Ala Arg Thr Glu Asp Phe Phe (SEQ ID NO: 27);
Leu Tyr Ser Asp Pro Ala Asp Tyr Phe (SEQ ID NO: 28);
Leu Pro Ser Ile Pro Val His Pro Ile (SEQ ID NO: 29);
Ser Pro Ser Pro Glu Phe Ser Gly Met (SEQ ID NO: 30);
Val Leu Val His Pro Gln Trp Val Leu (SEQ ID NO: 31);
Lys Leu Gln Cys Val Asp Leu His Val (SEQ ID NO: 32);

32 Ala Leu Pro Glu Arg Pro Ser Leu Tyr (SEQ ID NO: 33);
33 Ile Val Gly Gly Trp Glu Cys Glu Lys (SEQ ID NO: 34);
34 Gln Val His Pro Gln Lys Val Thr Lys (SEQ ID NO: 35);
35 Val Val His Tyr Arg Lys Trp Ile Lys (SEQ ID NO: 36); or
36 Cys Tyr Ala Ser Gly Trp Gly Ser Ile (SEQ ID NO: 37).

1 28. The method according to claim 22, in which the human dendritic cells
2 were obtained from skin, spleen, bone marrow, thymus, lymph nodes, chord blood, or
3 peripheral blood of the prostate cancer patient.

1 29. The method according to claim 22, in which the human dendritic cells
2 were obtained from peripheral blood.

1 30. The method according to claim 22, in which the human dendritic cells
2 are extended life span dendritic cells.

1 31. The method according to claim 22, in which the human dendritic cells
2 were cryopreserved, thawed and recovered prior to their use to activate the T cells *in vitro*.

1 32. The method according to claim 22, in which the T cells were obtained
2 from the patient.

1 33. The method according to claim 22, in which the T cells were obtained
2 from a healthy individual HLA-matched to the patient.

1 34. The method according to claim 22, in which the patient is suffering
2 from metastatic prostate cancer.

1 35. The method according to claim 22, in which the T cells comprise
2 purified CD8⁺ T cells or a mixed population of CD4⁺ and CD8⁺ T cells.